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AUTHOR Dalton, James H.; And Others
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ABSTRACT

Freshmen college students often experience a dramatic change in activities, values, and personal demands compared to home and previous schooling. To investigate the relationship between psychological maladjustment and stressful life events, locus of control, and social support networks, 62 college freshmen in their first semester of school completed the Life Expectancies Survey, two measures of locus of control (the Nowicki-Strickland generalized scale and the Wallston measure on health locus of control), a social support network map, and the Hopkins Symptom Checklist. An analysis of the results showed that students with high undesirable life events scores and a more external locus of control were more likely than others to experience anxiety, depression, obsession-compulsion, and somatic illness. The generalized locus of control index explained more variance than the health-related scale on the obsession-compulsion and somatic complaints measures. Health locus of control was a better predictor of anxiety, and the two scales were equally strong as predictors of depression. The size and density of social support networks were not significant mediators of the relationship between stress and maladjustment. Future research should focus on gender and environmental differences, and the causal relationship between short term stressful life events and coping style. (BL)

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Stressful Life Events, Locus of Control, and Social Support Networks as Predictors of Maladjustment and Illness Among College Freshmen[1]

James H. Dalton

Scott R. Grow

Douglas Henderson

Connie Schick

Bloomsburg State College

Running Head: Freshman Maladjustment

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[1]Correspondence may be directed to Dr. Dalton, Department of Psychology, Bloomsburg State College, Bloomsburg, PA 17815. The authors gratefully acknowledge the assistance of Barbara Elfman with data analysis and Sandra Long's manuscript preparation. These findings were originally presented at the Eastern Psychological Association meetings, Philadelphia, 1983.

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Abstract

In a study of 62 college freshmen in their first semester, students with higher undesirable life-events scores and a more external locus of control were more likely than others to experience anxiety, depression, obsessions and compulsions, and somatic illness. A generalized measure of expectancies regarding locus of control was a slightly better predictor of these symptoms than a more specific measure of health locus of control. The size and density of social support networks were not significant mediators of the relationship between stress and maladjustment. However, these students' networks were larger and less cohesive than those of more experienced students in previous studies, and thus lacked the cohesion needed to buffer stress.

Freshman students entering the world of the college campus experience an often dramatic change of environment. The activities, values and demands of college life are usually very different from those of home and previous schooling. These environmental qualities interact with individual characteristics of students: the developmental forces affecting students of different ages, as well as their personal identities, values and competencies. The effects of this life transition, and the coping resources needed to adapt to it, are important topics for psychological research. This research has both theoretical and practical significance. Theoretically, the campus setting is an accessible "natural laboratory" for studying adaptation to change and stress, with regard to developmental changes and environmental qualities. Practically, such studies could also identify factors underlying successful strategies for coping with the stress of the freshman transition and promoting healthy personal growth. Further "action-research" projects could investigate theoretical factors while evaluating programs designed to prevent or ameliorate freshman difficulties and promote healthy functioning.

The research we report in this paper is an exploratory study of stress and coping among freshmen students, designed to identify general relationships to guide more specific research and action. Studies of stress, coping, and maladaptive behavior among adults have identified three general domains which influence day-to-day psychological functioning and frequency of maladaptive "symptoms" among most people. First, stressful life events are clearly correlated with later incidence of symptoms of maladjustment (Dohrenwend & Dohrenwend, 1974; Holahan & Moos, 1981; Tessler & Mechanic, 1978). This holds true even when confounding variance associated with previous health status (Tessler & Mechanic, 1978) and level of adjustment (Holahan & Moos, 1981) are statistically removed.

Among college students, greater life changes and stressful events are associated with lower grades and greater incidence of academic difficulties (Wildman, 1978). An additional factor is that individuals tend to suffer more psychological distress if they encounter unfamiliar stressful events than if they must cope with familiar misfortunes (Eaton, 1978). This finding is particularly meaningful for college freshmen, since it is unlikely that they have previously encountered many of the stressors of college life. It has been demonstrated, for instance, that they are unable to predict the social climate of their dormitories (Perl, Note 1).

Second, the coping style of the person plays a major role in mediating the effect of life events. In social learning theory (Rotter 1972a), expectancies regarding the likelihood, desirability, and control of life events and reinforcements can be expected to correlate with occurrence of maladaptive behavior. Empirically, events perceived as unexpected, undesirable, and uncontrollable are associated with higher levels of symptoms (Joe, Miller & Joe, 1979). Such expectancies could be generalized across a number of situations, or specific to a particular type of setting or situation (Rotter, 1972a).

Third, the use of social resources such as mutual aid among friends, or professional help is an important factor in coping. Among adults, a number of studies (e.g., Holahan & Moos, 1981; Walker, MacBride & Vachon, 1977; Wilcox, 1981) have documented the "buffering" effect of social support as a coping resource. Studies by Leavy (Note 2) and Scovel and Rich (Note 3) extend this finding to college students. Leavy interviewed women students near the end of their first year of college; he found social support to be the primary factor which enabled students to cope with the stressful freshman-year transition. Denser social support networks--cohesive groups where people were likely to know and be intimate with each other--were better mediators of stress. This is similar to Wilcox's (1981) findings for adults and

Hirsch's (1979) data from college students. However, Leavy's participants described marked changes in their social support networks during the year. They tended to form large, dispersed networks based on fairly loose alliances early in the year; these resolved into smaller, more cohesive (or dense) groupings with time. The timing of this process is important---if network density is the crucial factor underlying the stress-buffering effect of social support, then the large, dispersed networks formed early in the freshman year may not play an important role in coping.

Hypotheses

The purpose of the study we report in this paper was to investigate, in an exploratory way, the relationships between psychological maladjustment and the three domains of predictor variables previously discussed. We chose to focus on college freshmen since the combination of an unfamiliar environment and the tasks and crises of their developmental periods (whether they are 18-year-olds or nontraditional students) may make them uniquely vulnerable to stress.

As indicators of psychological maladjustment and physical illness, we chose to study symptoms of anxiety, depression, obsessive-compulsive preoccupations, interpersonal sensitivity (defensiveness, paranoid thinking, and difficulties in relationships), and symptoms of somatic illness.

As predictors, we chose one variable from each domain: a measure of stressful life events, indicators of expectancies regarding locus of control, and characteristics of social support networks. For locus of control, we used both a measure of very generalized expectancies and an indicator of more specific, health-related expectancies. We also measured both the size and density of social support networks. By including measures of both coping style (locus of control) and support, we avoided the tendency of many studies in the literature to ignore the relationship between these two (Billings & Moos, 1978).

In this exploratory study, we developed seven hypotheses. First, stressful life events would be positively related to the incidence of symptoms of illness and maladaptive behavior. Second, students with an external locus-of-control orientation would have more somatic and anxiety symptoms and more difficulties in interpersonal relationships. Third, students with an internal orientation would have more symptoms of depression and obsessive preoccupations, a possibility suggested by Rotter (1972a). Fourth, a specific health-locus of control measure would predict somatic and anxiety symptoms more effectively than a generalized measure. Fifth, the generalized locus of control measure would be a better predictor of other maladaptive behaviors. Sixth, social network density and size would be inversely related to symptom occurrence. Seventh, network density would be a better predictor (thus, a better mediator) than network size.

Method

Subjects. Sixty-two freshmen at an Eastern public college participated in the study. All were students receiving credit for participation in introductory psychology classes.

Procedure. Near the end of the fall semester of 1981, participants completed a version of the Life Experiences Survey (Sarason, Johnson & Siegel, 1978) adapted for college students. Only negative events were scored from this measure in accordance with findings by Vinokur and Selzer (1975) that only negative events predicted symptoms. Students also completed two measures of expectancies regarding locus of control: the Nowicki-Strickland generalized scale (Nowicki & Duke, 1974) and the Wallston (1976) measure specifically concerned with health locus of control. They also drew a social support network map according to procedures developed by Todd (Note 4; Gottlieb & Todd, 1979). Network size was

computed by counting the number of individuals in this network; network density by dividing the number of friendship links between all network members by the maximum possible number of such links. Finally, participants completed the Hopkins Symptom Check List (Derogatis, Lipman, Covi, Rickels, & Uhlenhuth, 1970). This was the criterion measure of illness and maladjustment; it includes scales measuring anxiety, depression, obsessions and compulsions, somatic complaints, and interpersonal sensitivity. There is very little content overlap between the Hopkins and the Life Experiences Survey; correlations between Hopkins measures and this measure of stressful life events are not plausibly explained by illnesses or symptoms which would appear in both.

Statistical Analyses. The utility of the stressful events, locus of control and social network variables in predicting symptom occurence on the Hopkins index was assessed by hierarchical multiple regression analysis. A regression equation for each Hopkins scale was computed using negative life-events scores, a locus of control measure, and a social network measure as predictors entered in that order. Alternative analyses compared the predictive utility of generalized vs. health-related locus of control variables and network size vs. density indices.

Multiple regression analysis is more appropriate here than analysis of variance for several reasons (Cohen & Cohen, 1979). First, the predictor variables used in this study were qualities which vary along continua in nature. Dividing participants into "high" and "low" groups for analysis of variance is an artificial procedure which decreases predictive value. Second, the three domains of predictor variables were not likely to be independent or nearly so, as required by analysis of variance. Third, multiple regression analysis makes immediately available an estimate of the predictive value (proportion of variance accounted for) of a "causal" variable. This is often a more meaningful indicator of the importance of the association between two variables than a significance test.

Multiple regression analysis essentially involves (a) the computing of a Pearson correlation coefficient between each predictor variable and a dependent (or criterion) variable, then (b) statistically removing the overlap among these correlations, so that the relationship between multiple predictors and the criterion variable is known. A variety of methods exist for performing step (b) of this procedure. In this study, we used the hierarchical method (Cohen & Cohen, 1975; Kerlinger & Pedhazur, 197). Based on theory, the predictor variables are entered in the analysis in a fixed order; overlap of "effects" of two predictors is ascribed to the first one entered. In this study, we entered predictor variables in this order: stressful events, locus of control, social support. For instance, overlap in the relationships of stress and locus of control to a criterion variable (e.g., anxiety) was attributed to stress. The order of predictors listed above reflects two underlying assumptions: (a) that locus of control and social support are intermediate factors in the relationship between stress and symptoms, and (b) that locus of control, a stable personality characteristic (Rotter, 1972b) is more likely to influence the development of social support networks than vice versa.

For each criterion variable, we did four multiple regression analyses, one for each possible paired combination of the two locus-of-control variables with the two indices of social support networks.

Results

Means and standard deviations of all predictor and criterion variables are summarized in Table 1. Only the social-network data appear divergent from previous samples; these networks are larger and less dense than previous studies (Hirsch, 1979; Leavy, Note 2).

Insert Table 1 about here

In Table 2, we report correlations among the predictor variables. The stressful events variable is significantly ($p < .05$) related to both locus-of-control measures.

Insert Table 2 about here

Our multiple-regression findings are summarized in Table 3. For each of the five criterion variables, we report its relationship with stressful life events, and each locus-of-control measure. The association with each criterion measure of the two locus-of-control indicators was assessed in separate analyses; we have integrated the results in Table 3. The relationship of stressful life events to each criterion was the same for both analyses. In Table 3, we report both F tests and the proportion of variance in each criterion variable which was accounted for by each predictor variable. Since neither social-network variable accounted for more than one percent of the variance or had a significant F score for any criterion, we omitted the social network variables in Table 3.

Insert Table 3 about here

Our first hypothesis was generally supported; negative stressful life events were a statistically significant predictor on four symptom scales and explained over ten percent of the variance on all four of these: anxiety, somatic symptoms, depression, and obsession-compulsion. Beyond these effects, the predictive value of the locus of control variables was confirmed. On the same four Hopkins scales, generalized locus of control was a significant predictor. The pattern of results regarding locus of control, however, supported our second and fifth hypotheses, but not our third and fourth. Students with a more external

orientation were more likely to have experienced symptoms of anxiety, depression, somatic complaints and obsession-compulsion than those with a more internal orientation. The generalized locus of control index explained more variance than the health-related scale on the obsession-compulsion and somatic-complaints measures. Health locus of control was a better predictor of anxiety and the two scales were equally strong as predictors of depression.

Discussion

Our findings support the value of using negative life events and a generalized locus of control index to predict symptoms of psychological maladjustment and illness. These initial findings for college freshmen form an empirical basis for future studies of the specific stressful aspects of the college-entrance transition and their relationship to illness, maladjustment, and leaving college. In addition, the association of externality with symptom occurence suggests analyses of the person-situation interaction which occurs when students enter college with differing expectations regarding control of their life.

The failure of students' social support networks to buffer the effects of stressful life events in this study seem to be due to the characteristics of these networks. Consistent with Leavy's (Note 2) findings, the networks of freshmen students in our study, during their first semester, were larger and less dense than those of more experienced students (Hirsch, 1979; Leavy, Note 2). Thus these networks lack the cohesion which is a crucial mediator of stressful effects.

The relative lack of predictive strength of the health locus of control measure may be explained by the fact that the Hopkins scales are concerned primarily with symptoms and behaviors which are traditionally considered to have psychological meaning, rather than illness symptoms in general. Health locus of control was a better predictor of anxiety than the generalized measure; curiously, however, this was not true of somatic complaints.

Five suggestions can be made for future directions of research. First, broad-band measures of stressful life events such as the index used in this study, can be supplemented by measures of short-term hassles and uplifts which may have even greater effect in psychological adjustment (Kanner, Coyne, Schaefer & Lazarus, 1981).

Second, many additional psychological aspects of coping style need to be studied. In addition to locus on control, other generalized expectancies regarding problem-solving (Rotter, 1972a) as well specific expectancies regarding academic work, social relationships and related issues merit further study with freshmen. The predictive value of these variables will be enhanced if reinforcement value (Rotter, 1954; 1972a) is controlled or simultaneously studied. Needs for affiliation and achievement, and preference for active or passive exploration of one's environment (Edwards, 1979) are factors which can be conceptualized as reinforcement value. Finally, the specific strategies of coping are important. These can include methods of coping such as avoidant, active-cognitive or active-behavioral tactics (Billings & Moos, 1981). Alternatively the focus of coping-problem situation or emotional effects can be studied (Billings & Moos, 1981; Kanner, et. al., 1981).

Third, gender has an important influence on the coping process. While the sample size in our study was too small to include this variable, previous studies show gender differences in coping strategies (Billings & Moos, 1981; Kanner et. al., 1981) and size of social networks (Dalton & Allen, Note 5). In the latter study, an investigation of support networks among college students in dormitories, women generally began the academic year with larger networks than men, and enlarged this difference over time. This is not too surprising, when gender differences in communication style are considered. For instance, women self-disclose more often than men (Thorne & Henley, 1975).

Fourth, environmental differences among colleges and among campus residential

facilities are likely to influence the coping process. These settings can differ in how they facilitate or constrain stress as well as social support. A comparison of three colleges very different in size and mission (Perkins, Tebes, Joss, Lacy, & Levine, Note 6) found differences in the nature of stressful events encountered and the use of social support by students. Dalton and Allen (Note 5) found that differences in dormitory social environments had significant effects in the building of support networks, beyond the effect of gender differences. Again, while our sample was too small to assess such factors, future studies need to do so.

Fifth, the design of our study was correlational, and causal inference from our findings cannot be confirmed. However, potential causal roles are suggested in our findings for stressful life events (reported retrospectively in our study) and locus of control, which is a relatively stable personality characteristic (Rotter 1972b). Prospective studies of stressful life events and coping processes are needed to make confident causal conclusions.

The practical implications of our study center on enhancing adaptive coping strategies and building helpful social support networks. Our findings indicate that interventions in these areas need to take into account expectancies regarding locus of control. Students with more external orientations can be considered at higher risk of maladaptive behavior. Training in problem-solving skills, stress management, assertion/communication skills, or academic/study skills needs to address the issue of beliefs regarding control of events in one's life. These interventions need to provide experiences which can be mastered and controlled by students and which build a more internal sense of competence.

Our findings also suggest that efforts to facilitate the building of more cohesive social support networks need be intensified. While college student-life staff explicitly recognize the value of these networks for students, our data

indicate that this is not enough. Our student participants did not build the cohesive networks needed to buffer the effects of stressful events during the first semester of college, which is probably the most stressful semester. Additional interventions need to be designed. These especially need to take into account the effects of gender and campus environment discussed earlier, as well as the effects of the freshman-year transition and expectancies regarding locus of control. In addition, the need for support of nontraditional students--often women living at home with family or employment responsibilities, yet making the same freshman transition--deserves to be recognized.

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Table 1

Means and Standard Deviations for All Variables[1]

Variable	Mean	Standard Deviation
Stressful Events	357.65	255.06
Locus of Control	9.08	4.35
Health Locus of Control	37.91	6.71
Network Size	24.29	10.85
Network Density	.14	.07
Anxiety[2]	5.76	3.00
Depression[2]	7.17	4.01
Obsession-Compulsion[2]	5.71	3.61
Somatic Symptoms[2]	5.89	3.95
Interpersonal Sensitivity[2]	5.13	3.95

[1]Sample Size was 62

[2]Hopkins Scales from Derogatis, et.al. (1970).

Table 2

Relationships among Predictor Variables[1]

Variable	Variable				
	SE	LOC	HLOC	NS	ND
Stressful Events	--				
Locus of Control (LOC)	.31	--			
Health Locus of Control (HLOC)	.33	.50[2]	--		
Network Size (NS)	-.05	-.04	-.13	--	
Network Density (ND)	-.01	-.12	-.05	-.42[2]	--

[1]All entries are Pearson coefficients. Sample size was 62.
[2]While strong, these relationships are irrelevant to later analyses since these pairs of variables were never used in the same multiple regression analysis.

Table 3

Summary of Multiple Regression Analyses

Criterion Variable	Predictor Variable					
	Stressful Events		Locus of Control[1]		Health Locus of Control[1]	
	PV[2]	F[3]	PV[2]	F[4]	PV[2]	F[4]
Anxiety	.18	13.1*	.06	4.99*	.10	8.13*
Depression	.16	12.0*	.07	5.92*	.07	5.74*
Obsession-Compulsion	.10	6.8*	.14	11.40*	.10	7.56*
Somatic Complaints	.13	9.2*	.10	7.60*	.04	3.02
Interpersonal Sensitivity	.06	3.8	.05	3.10	.04	2.82

[1]These predictors were tested in separate analyses. See text for discussion.
[2]Proportion of variance accounted for by this predictor. See text for discussion of hierarchical entry method.
[3]df = 1,61 for all tests of this variable. Asterisks indicate Fs significant at .05 level.
[4]df = 1,60 for all tests of these variables. Asterisks indicate Fs significant at .05 level.